



Eur päisches Patentamt  
European Patent Office  
Office européen des brevets

(11) Publication number:

0 213 894  
A3

(12)

## EUROPEAN PATENT APPLICATION

(21) Application number: 86306477.0

(61) Int. Cl.: A61K 39/12 , A61K 39/21

(22) Date of filing: 21.08.86

(30) Priority: 23.08.85 US 768545

(43) Date of publication of application:  
11.03.87 Bulletin 87/11

(84) Designated Contracting States:  
AT BE CH DE FR GB IT LI LU NL SE

(86) Date of deferred publication of the search report:  
21.10.87 Bulletin 87/43

(71) Applicant: ADVANCED GENETICS RESEARCH  
INSTITUTE  
Cottonmill Building 2220 Livingston Street  
Oakland California 94606(US)

(72) Inventor: Wiesehahn, Gary P.  
1170 9th Street 5  
Alameda California 94501(US)  
Inventor: Lin, Lily  
80 Hill Road  
Berkeley California 94708(US)  
Inventor: Botchan, Michael R.  
1 Ardmore Path  
Kensington California 94708(US)

(74) Representative: Harrison, David Christopher  
et al  
MEWBURN ELLIS & CO 2/3 Cursitor Street  
London EC4A 1BQ(GB)

(54) Defective viral particle vaccines and methods for their use.

(57) Novel viral vaccines comprise defective viral particles in combination with an immunologic adjuvant. In the exemplary embodiment, defective retroviral particles comprise intact retroviral core and envelope proteins and genomic RNA incapable of reproducing the retrovirus. The retroviral particles are produced by co-expression in a suitable host of packaging-deficient retroviral DNA construct(s) and packaging sequence construct(s) which encode the packaged RNA. Defective viral particles may be recovered from the growth media of the expression host.

EP 0 213 894 A3

BEST AVAILABLE COPY



European Patent  
Office

## EUROPEAN SEARCH REPORT

Application number

| DOCUMENTS CONSIDERED TO BE RELEVANT  |  |                   | EP 86306477.0  |   |        |        |
|--|--|-------------------|--|---|--------|--------|
| Category   | Citation of document with indication, where appropriate, of relevant passages  | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int. Cl.)   |   |        |        |
| D,A  | <p>CELL, vol. 33, no. 1, May 1983,<br/>(Cambridge, Mass., USA)</p> <p>R. MANN et al. "Construction of Retrovirus Packaging Mutant and its Use to Produce Helper-Free Defective Retrovirus."<br/>pages 153-159</p> <ul style="list-style-type: none"> <li>* Page 153, column 1 - column 2, line 30; page 157, column 1, line 11 - column 2, line 44 *</li> <li>--</li> </ul> <p><u>US - A - 4 405 712 (VANDE WOUDE)</u></p> <ul style="list-style-type: none"> <li>* Column 1, line 39 - column 7, line 19 *</li> <li>--</li> </ul> <p>PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA; vol. 79, no. 19, October 1982, (Baltimore, USA)</p> <p>SH. WATANABE et al. "Encapsidation sequences for spleen necrosis virus, an avian retrovirus, are between the 5' long Terminal repeat and the start of the gag gene."<br/>pages 5986-5990</p> <ul style="list-style-type: none"> <li>* Page 5986, column 1 *</li> <li>--</li> </ul> | 1,3,4,<br>6       | A 61 K 39/12<br>A 61 K 39/21   |   |        |        |
| D,A  |  | 1,3,4,<br>8       |  |   |        |        |
| D,A  |  | 1,3,4             | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">TECHNICAL FIELDS<br/>SEARCHED (Int. Cl.)</td> </tr> <tr> <td style="padding: 2px;">A 61 K</td> </tr> <tr> <td style="padding: 2px;">C 12 N</td> </tr> </table> | TECHNICAL FIELDS<br>SEARCHED (Int. Cl.) | A 61 K | C 12 N |
| TECHNICAL FIELDS<br>SEARCHED (Int. Cl.)  |  |                   |  |   |        |        |
| A 61 K   |  |                   |  |   |        |        |
| C 12 N   |  |                   |  |   |        |        |
| The present search report has been drawn up for all claims                       |  |                   |  |   |        |        |
| Place of search  | Date of completion of the search   | Examiner          |  |   |        |        |
| VIENNA   | 10-08-1987   | BECKER            |  |   |        |        |
| CATEGORY OF CITED DOCUMENTS  |  |                   |  |   |        |        |
| X : particularly relevant if taken alone   | T : theory or principle underlying the invention   |                   |  |   |        |        |
| Y : particularly relevant if combined with another document of the same category | E : earlier patent document, but published on, or after the filing date  |                   |  |   |        |        |
| A : technological background   | D : document cited in the application  |                   |  |   |        |        |
| O : n n-written disclosure   | L : document cited for other reasons   |                   |  |   |        |        |
| P : intermediate document  | & : member of the same patent family, corresponding document   |                   |  |   |        |        |

BEST AVAILABLE COPY



**EUROPEAN SEARCH REPORT**

Application number

EP 86306477.0

| <b>DOCUMENTS CONSIDERED TO BE RELEVANT</b>  |   |   |   |
|---|---|---|---|
| Category  | Citation of document with indication, where appropriate, of relevant passages   | Relevant to claim   | CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)    |
| D,A   | <p>CELL, vol. 23, no. 1, January 1981, (Cambridge, Mass., USA)</p> <p>Y. GLUZMAN: "SV40-Transformed Simian Cells Support the Replication of Early SV40 Mutants." pages 175-182</p> <ul style="list-style-type: none"> <li>* Page 175, column 1 - column 2, line 9; page 179 column 2, line 29 - page 181, column 1, line 19 *</li> <li>---</li> </ul> | 1   |   |
| A   | <p><u>EP - A1 - 0 117 767 (MOLECULAR GENETICS)</u></p> <ul style="list-style-type: none"> <li>* Page 7 - page 10, line 13 *</li> <li>----</li> </ul>  |   | <p>TECHNICAL FIELDS<br/>SEARCHED (Int. Cl. 4)</p> |
| <p>The present search report has been drawn up for all claims</p>   |   |   |   |
| Place of search<br><b>VIENNA</b>  | Date of compilation of the search<br><b>10-08-1987</b>  | Examiner<br><b>BECKER</b>   |   |
| <b>CATEGORY OF CITED DOCUMENTS</b> <p>X : particularly relevant if taken alone<br/>     Y : particularly relevant if combined with another document of the same category<br/>     A : technological background<br/>     O : non-written disclosure<br/>     P : intermediate document</p> |   | <p>T : theory or principle underlying the invention<br/>     E : earlier patent document, but published on, or after the filing date<br/>     D : document cited in the application<br/>     L : document cited for other reasons<br/>     &amp; : member of the same patent family, corresponding document</p> |   |

**BEST AVAILABLE COPY**